



# Indianapolis-Marion County Forensic Services Agency *Focus*

Serving the Citizens &  
Criminal Justice System  
of Marion County

Volume 1, Issue 1

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## Newsletter Introduction

The Indianapolis-Marion County Forensics Services Agency is publishing its first quarterly newsletter in 2009 as part of our commitment to improve communications with our "customers" on related forensic laboratory issues. The newsletter, or *Focus*, is not designed to be a rehash of everything that the "Crime Lab" can accomplish - evidence bulletins have been added to our website for this purpose. Instead, the *Focus* will address "hot topics and issues" related to forensic science as they pertain to investigations and the needs of our customers. We also hope to communicate new scientific methods we are using and how they can be used in an investigation. Please share this information with your personnel and others with a stake in the criminal justice system.

With the *Focus*, we look forward to providing you with continued forensic laboratory service with quality, integrity, accountability and ethics.

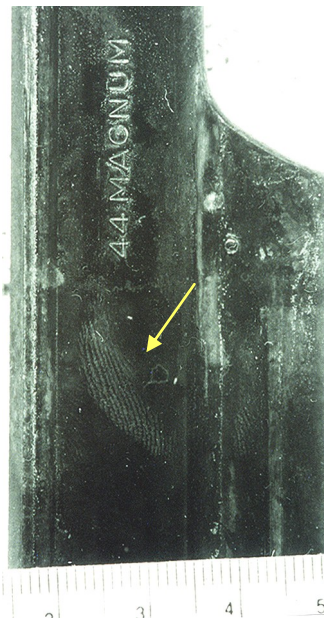
- Mike Medler, Lab Director

## Protection of Crime Scenes

One of the biggest problems encountered at a crime scene is unintentional contamination by officers, detectives, supervisors and others who enter the scene for purposes other than gathering physical evidence. While television depicts murder scenes filled with officers and detectives, this is a reminder that in real life protection of the scene is of the utmost importance until all evidence has been properly documented and collected.

Sensitive forensic tests including DNA Analysis and trace analysis are easily rendered useless by improper protection of the crime scene. Collection of hair samples, touch DNA, shoeprints and tire tracks becomes an exercise in futility when officers have been allowed to wander the scene without cause.

Detectives and supervisors who are ultimately responsible for "management of the crime scene" are reminded that protection of the scene will greatly enhance the forensic potential of evidence gathered there. Crime scene management, strictly



Latent print developed using the cyanoacrylate (super glue) fuming technique on a handgun slide.

enforced policies regarding scene protection and crime scene entry "sign-in logs" are strongly recommended.

- CSS Mike Smilko,  
Crime Scene Specialist Section  
Supervisor

## Last Minute Latent Fingerprint Requests

Many times the I-MCFSA Latent Fingerprint Section receives inquiries about the status of a fingerprint case. The detective or the prosecutor states their case is going to court the next day and the results are needed immediately. Incorrect information about how long it takes to process and compare fingerprints has been spread by television shows like CSI where this is depicted as a speedy process. It's no wonder agencies are frustrated to learn that the speed of completing fingerprint processing/ comparison is not as fast as they have been led to believe by the

media. When evidence is to be processed for latent fingerprints it involves more than merely dusting the item with black powder. Items will be processed using different techniques and chemicals, depending on the type of item. Should any latent prints develop, they must be photographed before the next process can begin. Numerous prints may develop on some items and in some cases no prints will develop at all. Obviously, the more prints that are developed on an item the longer it takes to complete the process. Also, keep in mind that once those prints are

developed the comparison process begins. This process also takes time, especially if a large amount of prints are developed and these need to be searched in AFIS, or there are multiple suspects to compare.

Timely notification of court dates is important in allowing the Crime Lab's forensic scientists and technicians ample time to complete cases for trial.

- F/S Lee Ann Harmless,  
Forensic Documents/Latent Prints  
Section Supervisor

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## Of Note:

- DNA Analysis on items which are frequently touched by many people, e.g. door handles, generally result in mixtures, or inconclusive findings
- Fluorescein, a new blood reagent that does not require complete darkness for testing, is now being used by the Crime Scene Unit
- Latent fingerprints are infrequently developed on firearms due to the surface texture of the weapons



## *Y-STR DNA Analysis Now Performed*

The DNA Section of the Indianapolis-Marion County Forensic Services Agency is now offering Y-STR DNA analysis. Y-STR analysis is performed at test locations located solely on the Y chromosome to obtain a DNA profile from samples of **male** origin. This type of DNA analysis is in addition to the conventional STR DNA analysis that the laboratory has been performing for the past ten years. Y-STR analysis will be performed on a select number of samples/cases as further clarified below.

- 1) Male DNA in the presence of a huge quantity of female DNA (e.g. vaginal swabs from sexual assault, fingernail scrapings).

- 2) Samples potentially containing DNA from more than one male individual.
- 3) Samples positive for seminal fluid, however no sperm are present.
- 4) Post coital samples. A Y-STR DNA profile can potentially be developed from 5-6 days post coital samples.

Because the Y chromosome is passed from father to son, it is important to note that this test will not differentiate between men who have the same paternal lineage. Being Y-chromosome specific, statistical calculations for a match will not lead to identity of the source as is seen in conventional STR analysis. The

DNA Analyst assigned will determine the need for Y-STR analysis and therefore a request card does not need to be submitted.

Currently, Y-STR DNA can not be used for a CODIS database search. Y-STR DNA profiles will be maintained on file and entered into CODIS when permitted.

Contact Muhammad Amjad, Ph.D., at 327-4940 if you have questions regarding Y-STR analysis.

- F/S Muhammad Amjad,  
DNA Technical Leader/DNA  
Section Supervisor



Entrance to the Crime Lab's  
Biology Unit and Marion County  
Coroner's Complex at 521 W.  
McCarty Street

## *The Power of the NIBIN System*

The I-MCFA Firearms Section utilizes the National Integrated Ballistics Information Network (NIBIN) computer system developed by The Bureau of Alcohol, Tobacco and Firearms, in conjunction with Forensic Technology International. The NIBIN system provides the I-MCFA Firearms Examiners with a tool that allows us to connect previously unconnected shooting scenes together.



NIBIN System

Cartridge cases recovered from one crime "shooting" scene are digitally captured by the NIBIN computer system in the laboratory and continually searched against other cartridge cases previously entered or cartridge cases fired from confiscated firearms. There have been 234 NIBIN "hits" to date associating

over 450 cases previously not known to be connected. These associations cross the spectrum of case types from homicide to criminal recklessness with a firearm.

The Crime Lab employs two Firearms Technicians who input test fires from approximately 150-200 NIBIN criteria guns recovered in Marion County every month, and between 15-30 NIBIN criteria cartridge cases from unsolved shooting events. Correlation results are reviewed by a Firearms Examiner and any hits are confirmed using the actual evidence from both cases on the ballistic comparison microscope. The criteria for a cartridge case or firearm to be entered into NIBIN are as follows:

### **Cartridge Cases**

- 1) Must be a casing from a semiautomatic firearm
- 2) Must be between 32 Auto caliber and 50 Action Express caliber
- 3) Must be from a unsolved shooting scene or not known to be associated to a gun at the time of entry

- 4) Must have suitable breach-face marks and firing pin impression for a correlation.

Currently the I-MCFA does not enter rifle calibers such as 30 Carbine, 7.62 x 39mm or .223 Remington into the NIBIN computer.



NIBIN "Hit" - Breachface Marking

### **Firearms**

- 1) Must be a semiautomatic firearm (no revolvers or shotguns)
- 2) Must be between 32 Auto caliber and 50 Action Express
- 3) Must have suitable breach-face and firing pin characteristics

Currently the Firearms Section does NOT enter bullets from

shooting scenes or recovered guns into the NIBIN computer system.

The power of the NIBIN system is that it is connected regionally with other NIBIN hubs located at other laboratories across the Midwest. This allows us to compare casings from Indianapolis-Marion County to other casings or guns from a larger geographical area. Also, we may be able to provide new life to an investigation that has gone cold over time.

In conclusion, the Firearms Section encourages submitting agencies to utilize this tool to its fullest potential and submit any cold cases you believe may benefit from entry into the NIBIN system. Connecting firearms to recovered casings may be the first step in bringing justice to a victim's family or providing that case-breaking lead for which you've been searching.

Call Mike Putzek at 327-3777 if you have questions.

- F/S Mike Putzek,  
Firearms Section Supervisor



## Clandestine Ecstasy Submitted to the Crime Lab

3,4 Methylendioxyamphetamine (MDMA) or 'Ecstasy' is found among today's youth. MDMA provides both amphetamine-like stimulant and mild mescaline-like hallucinogenic effects. MDMA often reduces inhibitions, eliminates anxiety, enhances tactile sensations, increases sensual arousal and produces extreme relaxation.

It is touted as a "feel good" drug with an **undeserved reputation of safety**. MDMA is usually distributed in tablet form and taken orally at doses ranging from 50 to 200 mg. Individual tablets are often imprinted with graphic designs or commercial logos, and typically contain 80-100 mg of MDMA. After oral administration, effects are felt within 30 to 45 minutes, peak at 60 to 90 minutes. The effects produced by consuming MDMA can last for 4 to 6 hours, depending upon the potency of the tablet. Using the drug can cause confusion, depression, anxiety, sleeplessness, craving for the drug, and paranoia. People who have circulatory problems or heart disease face particular risks because MDMA can increase heart rate and blood pressure. MDMA abusers also risk dehydration, hyperthermia and heart or kidney failure if they use the drug while physically exerting themselves or in hot environments.

The tablets are available in a wide variety of colors and logos, thus appealing to the younger user. MDMA is most commonly seen in tablet form but may be found in capsules or as a powder. It is usually ingested orally, but it can be crushed and snorted or injected.



*Ecstasy Tablets - images courtesy of the DEA*

Street terms for Ecstasy may include X, Adam, hug drug, roll, B-bombs, Clarity, Cristal, Decadence, Disco Biscuit, E, Essence, Eve, Love Drug, Morning Shot and Wheels.

While 'Ecstasy' is the popular name for MDMA, 'Ecstasy' is any pill represented as MDMA on the streets of Indianapolis and

Marion County. An important point that should be noted here is that in Indianapolis 'Ecstasy' pills are unreliable in content, more so than other street drugs that are seen here in the Crime Lab. This means that users also are at risk of consuming other drugs that may be sold to them under the guise of MDMA. The Crime Lab has found Ecstasy pills which contain substances such as caffeine, methamphetamine, ketamine, procaine, MDMA, and piperazines such as 1 Ben-zylpiperazine (BZP). Often the tablets contain several of the above substances and no MDMA. And the substances used in these "fake" pills can be much more toxic than what the person thought that they were purchasing.

MDMA is a Schedule I controlled



*Ecstasy Tablet - Transformers Imprint*



*Ecstasy Tablet - Teenage Mutant Ninja Turtles Imprint*

substance. Once found almost exclusively at raves or in college dorms, ecstasy is nearing the cultural acceptance marijuana reached. What is the reason for this drug's growing popularity? **MONEY.**

This drug has a high profit margin, selling ecstasy is an easy way to make money. The pills sell for \$30 while most dealers buy them for \$8 to \$11.

- F/S Bob McCurdy,  
Chemistry Unit Supervisor

## Probative Evidence

Webster's Dictionary defines probative as "serving to test or try; exploratory; serving to prove; substantiating." It is important to remember when requesting forensic laboratory services that the request be at least potentially probative to the case. Non-probative requests (i.e., requesting to have DNA Analysis completed on blood running from a victim's arm, requesting fingerprint processing and examination on items taken

from a suspect's hand by the officer, requesting additional tests that would serve to identify the subject multiple times in the absence of additional suspects) have a cost associated with them - namely, the fact that little is being gained by the results of the test which can be very expensive. There is also an opportunity cost associated with these requests in that the lab's resources could have been more wisely used on backlogged cases

which are in serious need of forensic testing.

In many cases Forensic Scientists work in a vacuum of information so it is difficult to determine what may or may not be probative to the case at hand. Please do not be offended if you receive calls from the Crime Lab asking for more information or to discuss the reasoning behind a particular request. This is only to ensure that we are using our

resources frugally and so that we can move forward to your next case as soon as possible.

The Crime Lab is certainly cognizant of the fact that preparation for adjudication of a case may create requests which appear less probative in nature when one considers the tenants of proof and the expectations of today's juries - often tainted by the "CSI effect."

- F/S Ron Blacklock,  
Deputy Laboratory Director





**Indianapolis-Marion County  
Forensic Services Agency  
40 S. Alabama St.  
Indianapolis, IN 46204**

**Phone: 317-327-3670**

**Fax: 317-327-3607**

**<http://www.indy.gov/eGov/County/FSA/Pages/>**

**Serving the Citizens &  
Criminal Justice System  
of Marion County**

**Laboratory Management Team:**

Michael Medler, Laboratory Director  
Ronald Blacklock, Deputy Laboratory Director  
Brenda Keller, Quality Assurance Manager  
Muhammad Amjad, DNA Tech. Leader/Supervisor  
Lee Ann Harmless, FDE/Latent Prints Supervisor  
Robert McCurdy, Chemistry Unit Supervisor  
Michael Putzek, Firearms Section Supervisor  
Michael Smilko, Crime Scene Spec. Supervisor  
David Smith, Serology Section Supervisor  
Amanda Sondgeroth, Forensic Evidence Tech. Sup.  
Larry Schultz, Forensic Operations Manager  
Jeani Nolte, Forensic Administrator

*Newsletter edited by Ronald Blacklock*



*The Indianapolis-Marion County Forensic Services Agency shall provide forensic services to the Marion County Community by supporting the needs of the Criminal Justice System. The forensic services provided shall be built on a foundation of quality, integrity, accountability and ethics. All I-MCFSa personnel shall strive to meet forensic needs of today and into the future in all their work endeavors.*

**Forensic Services Board**

Michael Spears, Chairman, Chief - Indianapolis Metropolitan Police Department  
Frank Anderson, Marion County Sheriff  
Dr. Frank Lloyd, Marion County Coroner  
Billie Breaux, Marion County Auditor  
Joseph Bono, Mayoral Appointee, IUPUI Forensic & Investigative Sciences Program  
Dr. Sam Nunn, City-County Council Appointee, IUPUI School of Public & Environmental Affairs

## ***Touch DNA Analysis***

The term "touch DNA" analysis accurately describes the basis of the analysis that attempts to obtain a DNA profile from the surface of an object following contact with the skin of an individual. The theory is that when someone touches an object some of their cells, and hence their DNA, is transferred to that object and these cells can be collected and forensically analyzed. Despite what is seen on television and in the newspapers this type of analysis does not have a high rate of success mainly due to the small sample size involved. As one can imagine this is a very sensitive technique and the chances of contamination are quite high. Several factors should be considered when contemplating the use of this kind of analysis and these should be considered when collecting evidence and reading laboratory reports.

The sensitivity of this analysis means that contamination issues must be at the forefront of the police investigators mind. Every time the evidence is handled the

possibility of DNA being deposited on the evidence is increased. It is therefore necessary that the possibility of touch DNA analysis be considered very early in an investigation. Unfortunately once a piece of evidence is compromised it stays that way. It is important that if touch DNA analysis is required then the evidence be handled as little as possible and when it is handled the handler must be wearing gloves. Face masks should also be considered as talking over a piece of evidence can contaminate it with cells contained in saliva. Ideally all personnel involved in the processing of a crime scene should have their DNA profile on record at the laboratory so potential instances of sample contamination can be identified.

The nature of the types of evidence being submitted for touch DNA analysis should be considered. For example, touch DNA analysis can be carried out on clothing but one must bear in mind that the majority of the DNA on the clothing will be that of the

person wearing the clothing. The chances of finding DNA from someone who touched or removed the clothing are quite low. If such a request is submitted to the lab then details regarding which areas of the clothing to sample greatly help the analysts in their work.

Another thing to consider is the probative value of the evidence. At the scene of a burglary, for example, it is important to question the victim to find out if any objects have been moved by the perpetrator. These objects would then be of interest to the investigator as possible sources of touch DNA. Sometimes the perpetrators of such crimes either eat or drink at the scene and used beverage containers and half eaten food items are a useful source of DNA evidence. Care should be taken to collect meaningful samples and not just swab everything in the hope of picking up a DNA profile. Investigators should not be carried away by concentrating solely on touch DNA evidence – if there is a

bloodstain or fingerprint at the point of entry (or elsewhere in the scene) then these are highly probative items of evidence and should be collected appropriately.

When submitting evidence to the laboratory it is important to request touch DNA analysis initially and not to add it on as an afterthought. Evidence is processed differently if this type of DNA is requested especially in the areas of fingerprints and firearms. Requests for touch DNA analyses should not be submitted to the laboratory after an item has been initially examined as it will not have been handled appropriately and will render such analyses useless.

In conclusion, touch DNA analysis maybe a useful tool for the police investigator to use but its limitations must be considered as well as the fact that it not be viewed as a panacea for the overall investigation.

- FIS David Smith,  
Serology Section Supervisor